

Electrical and Machine Guarding Program

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I. Electrical Safeguarding Program

A. Policy Statement

DGS employees shall not be exposed to electrical hazards that may cause injuries or fatalities. Equipment shall be inspected to ensure all hazards are controlled. Unsafe equipment shall be taken out of service. If maintenance must be done on electrical systems, electrical power servicing the equipment or systems shall be de-energized, and locked out, if required by the lockout/tagout program.

All employees must be properly instructed concerning electrical hazards in their workplaces and understand the necessary safe work practices to avoid injury. Specific electrical hazards in each department shall be addressed to employees that have responsibilities to operate equipment.

B. Examination, Installation, and Use of Electrical Equipment

All electrical equipment shall be installed and examined to ensure it is free from recognized hazards that are likely to cause death or serious physical harm to employees. Proper safety shall be determined by using the following considerations:

- Suitable installation of Underwriters Laboratory listed and labeled equipment and use per OSHA standard 29 CFR 1910, Subpart S and the National Electrical Code, NFPA-20.
- Proper mechanical strength and durability, including parts enclosing and protecting equipment.
- Protection from heating effects under normal usage.
- Arc protection
- Proper classification by type, size, voltage, current capacity, and specific use.
- Any other factors that should be considered to ensure employee safety.

C. Working Clearances

Indoor areas containing electrical equipment such as disconnects and electrical panels shall be maintained in a clean and orderly fashion, shall not be used as storage, and will have adequate illumination. Objects shall not be placed within 36 inches of the front of an electrical panel.

II. Machine Guarding

A. Policy Statement

One or more methods of machine guarding or controls must be used to protect the operator and others in the machine area from hazards such as:

- Points of operation, such as saw blades, and metal shears;
- In-going nip points, such fan belts and chain drives;
- Rotating parts, such as fan blades, grinder wheels, motor shafts, and power take-off shafts;
- Flying chips and sparks, such as from grinding and welding operations.

The supervisor or manager shall ensure all required guards are in place. Factory installed guards must not be removed or altered. Employees should be informed to not operate equipment that is not guarded properly. Equipment that is not guarded properly must be taken out of service until guards are replaced. Two hand controls may be used for equipment that cannot be guarded effectively. The area supervisor is responsible to ensure all safety aspects of the machine guarding program are consistently implemented. If two-hand controls are used to provide protection, the supervisor shall ensure that the control systems operate properly before the machine is used.

B. Maintenance Operations

If maintenance operations require guards to be removed for servicing of equipment, require other controls to be disabled, or the employee must place any part of his body in a hazardous area, the equipment must be de-energized before maintenance begins. If the equipment can be locked-out, locks and tags should be installed according to the requirements of the DGS Lockout/Tagout program. Equipment that cannot be locked out shall be tagged in the de-energized position. Exceptions include plug and cord type equipment where the maintenance person maintains control of the plug, and mobile equipment such as tractors and other power equipment. Mobile equipment shall be shut down during maintenance that requires guards to be removed.

C. Inspections

Area supervisors shall, on a monthly basis, inspect all equipment to ensure that guards are installed as required. The attached checklist shall be used for inspections. Completed checklists shall be returned to the Bureau Director or Section Chief responsible for the equipment. Equipment that is not guarded properly must be taken out of service until the guards are replaced.



Machine Guarding Inspection Checklist

Equipment:

Date: _____ Location: _____ Conducted By: _____

Mechanical Hazards	Yes	No
<i>The point of operation :</i>		
1. Is there a point-of-operation safeguard provided for the machine?		
2. Does it keep the operator's hands, fingers, and body out of the danger area?		
3. Are safeguards in place and not altered?		
4. Are fans and compressors properly enclosed?		
<i>Power transmission apparatus :</i>		
1. Are all gears, sprockets, pulleys, motor shafts, power take-off shafts and/or flywheels properly guarded?		
2. Are all belts and chain drives properly guarded?		
3. Are all setscrews, key ways, or collars properly guarded?		
4. Are starting and stopping controls within easy reach of the operator?		
<i>Other moving parts :</i>		
1. Are safeguards provided for all hazardous moving parts of the machine, including auxiliary parts?		
Non-mechanical Hazards		
1. Have special guards, enclosures, or personal protective equipment been provided, where necessary, to protect workers from exposure to harmful substances used in machine operation?		
Training		
1. Do operators and maintenance workers have the necessary training in how to use the safeguards and why? _____		
2. Have operators and maintenance workers been trained in where the safeguards are located, how they provide protection, and what hazards they protect against?		
3. Have operators and maintenance workers been trained in how and under what circumstances guards can be removed?		
4. Have workers been trained in the procedures to follow if they notice guards that are dangerous, missing, or inadequate?		
Machinery Maintenance and Repair		
1. Have maintenance workers received up-to-date instruction on the machinery they service?		
2. Do maintenance workers lock out the machine from its power sources before beginning repairs where the guard must be removed?		
3. Where several maintenance persons work on the same machine, are multiple lockout devices used?		
4. Do maintenance persons use appropriate and safe equipment in their repair work?		
Other Items to Check		
1. Are emergency stop buttons, switches, or bars provided?		
2. Are two hand control provided where required?		
3. Are the emergency stops clearly marked and painted red?		
4. Are there warning labels or markings to show hazardous areas?		
5. Are the warning labels or markings appropriately identified by yellow, yellow and black, or orange colors?		